

Claims

What is claimed is:

1. A gripper device for loosening, tightening or gripping objects comprising:
5 a support structure having a fixed, object contact surface in the form of a fixed wall; a cinch strap; and a pivot arm pivoted at one end to the support structure and having a free end, wherein the cinch strap has a first one end that engages with the free end of the pivot arm, and a second end that engages with the support structure.
- 10 2. The gripper device of claim 1, wherein the fixed wall has a ridge to align and prevent cinch strap slippage.
- 15 3. The gripper device of claim 1, wherein the cinch strap has a high friction surface to grip objects.
4. The gripper device of claim 1, wherein the pivot arm has one of a movable rocker arm and a cam positioned at its free end, which movable rocker arm or cam have a high friction surface.
- 20 5. The gripper device of claim 1, further comprising a spring to bias the rocker arm away from the fixed, object contact surface.
- 25 6. The gripper device of claim 1, wherein the first end of cinch strap is fixed to the free end of the pivot arm.
7. The gripper device of claim 6, wherein the support structure cinch strap engagement means to retain the cinch strap to the support structure.
- 30 8. The gripper device of claim 7, wherein the cinch strap engagement means comprises a locking device for adjusting a working length of the cinch strap.

9. The gripper device of claim 6, wherein the cinch strap rides over a slider on the support structure.

10. The gripper device of claim 1, wherein the fixed, object contact surface and the 5 pivot arm are connected to a handle for mobility.

11. The gripper device of claim 1, wherein the object contact surface has a non-slip surface.

10 12. The gripper device of claim 1, wherein the support structure can be mounted to any other surface.

13. The gripper device of claim 1, further comprising a hinge attached to the support structure to permit the gripper device to swivel or swing on the hinge.

15 14. The gripper device of claim 1, further comprising a cover plate that is shaped in a manner to retain the cinch strap in the device.

20 15. The gripper device of claim 1, wherein the second end of the cinch strap is fixed to the support structure and the cinch strap rides over a slider on the free end of the pivot arm.

16. The gripper device of claim 15, wherein the slider comprises one of a low friction glide and a rotatable pulley.

25 17. The gripper device of claim 15, further comprising cinch strap engagement means to lock the second end of the cinch strap.

18. A gripper device comprising:
30 a support structure having a fixed object contact surface and a handle;
a cinch strap with a first and second end;

a pivot arm pivoted at one end on the support structure and having a free end, wherein the cinch strap is fixed to one of the pivot arm and support structure, and has a free end that passes over a slider on one of the free end of the pivot arm and on the support structure; and

5 a cinch strap engagement means to retain a free end of the cinch strap.

19. A system for carrying generally cylindrical objects, comprising a plurality of spaced apart gripper devices as set forth in claim 1 and an articulating arm with a drive belt, which driver belt is adapted to rotate and bring object into contact with the cinch

10 straps of the gripper devices to thereby cause the gripper devices to capture the objects.

20. The system for carrying generally cylindrical objects of claim 19 wherein the plurality of spaced apart gripper devices and the articulating arm with a drive belt are affixed to a frame, which frame can be attached to a forklift or crane.